

## REMARKS

Entry of the foregoing and reconsideration of the application identified in caption, as amended, pursuant to and consistent with 37 C.F.R. §1.111 and in light of the remarks which follow, are respectfully requested.

By the present amendment, new dependent claim 31 has been added which recites that the external layer is formed from a composition consisting of as a polymer matrix a polyamide composition consisting of (i) or (ii).

In the Official Action, claims 1-3, 10, 11, 22, 27, 28 and 30 stand rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,330,810 (*Nishino*) in view of U.S. Patent No. 5,039,786 (*Pipper et al*) and U.S. Patent No. 4,212,965 (*Campbell*). Claims 12, 14 and 16-18 stand rejected under 35 U.S.C. §103(a) as being obvious over *Nishino* in view of *Pipper et al* and *Campbell*, and further in view of European Patent Document No. 0 646 627 (*Princiotta et al*). Claim 13 stands rejected under 35 U.S.C. §103(a) as being obvious over *Nishino* in view of *Pipper et al* and *Campbell*, and further in view of U.S. Patent No. 5,357,030 (*VanBuskirk et al*). Claim 26 stands rejected under 35 U.S.C. §103(a) as being obvious over *Nishino* in view of *Pipper et al* and *Campbell*, and further in view of U.S. Patent No. 4,881,576 (*Kitami et al*). Withdrawal of these rejections is respectfully requested for at least the following reasons.

*Nishino* does not disclose or suggest each feature recited in independent claim 1. For example, *Nishino* does not disclose or suggest an external layer that is the outermost layer of the multilayer structure, and in that at least the external layer is formed from a composition comprising as a polymer matrix a polyamide composition comprising: (i) a polyamide thermoplastic copolymer obtained by copolymerization of  $\epsilon$ -caprolactam, and a mixture of hexamethylenediamine with a diacid comprising at least

9 carbon atoms, the ratio by weight between the  $\epsilon$ -caprolactam and the total amount of hexamethylenediamine and diacid being between 4 and 9, or (ii) a mixture of at least said thermoplastic polyamide copolymer (i) and at least one second thermoplastic polyamide or copolyamide obtained by polymerization of monomers comprising fewer than 9 carbon atoms, the content by weight of the second thermoplastic polyamide or copolyamide in the polymer matrix being between 0 and 80% by weight.

The Patent Office has relied on *Nishino* for disclosing polyhexamethylene dodecamide (nylon 6.12). See Official Action at page 3. However, the polyhexamethylene dodecamide (nylon 6.12) disclosed by *Nishino* does not correspond to the claimed polyamide thermoplastic copolymer obtained by copolymerization of  $\epsilon$ -caprolactam, and a mixture of hexamethylenediamine with a diacid comprising at least 9 carbon atoms. Further, as acknowledged by the Patent Office, *Nishino* does not disclose or suggest a ratio by weight between the  $\epsilon$ -caprolactam and the total amount of hexamethylenediamine and diacid being between 4 and 9.

*Pipper et al* has been relied on for disclosing "a copolymer of caprolactam and mixture of hexamethylene with a diacid having 12 carbons of 4 to 9 by weight". See Official Action at page 3. The Patent Office has alleged that "[i]t therefore would have been obvious...to have provided for a ratio of caprolactam and mixture of hexamethylene with a diacid having 12 carbons of 4 to 9 by weight [sic] *Nishino* in order to make the article by injection molding or extrusion as taught by *Pipper et al*." However, *Nishino* already contemplates the use of extrusion. Specifically, *Nishino* discloses that "[a]ny known common extrusion forming, extrusion coating and other methods may be arbitrarily employed as a forming method of the fuel transfer tubes", and that "the method with common extrusion forming using two, three or four extruders

and a tube die for multiple layers may produce endless tubes efficiently." See col. 3, lines 45-51. Thus, it would not have been obvious to employ *Pipper et al*'s copolymer in the formation of the *Nishino* tube for the reasons alleged by the Patent Office, because *Nishino* already discloses that its compositions are suitable for use in extrusion processes.

The secondary applied documents fail to cure the above-described deficiencies of *Nishino*. In this regard, the Patent Office has relied on *Campbell* for disclosing an impact modifier. See Official Action at page 3. *Princiotta et al* has been relied on for disclosing the use of an acid-modified ultra low density polyethylene having specific characteristics. See Official Action at pages 4-5. *VanBuskirk et al* has been relied on for disclosing the addition of a chain extender to polyamide. See Official Action at pages 5-6. *Kitami et al* has been relied on for disclosing a gasoline hose having specific characteristics. See Official Action at pages 6-7.

Even if the above secondary applied documents would have been combined with *Nishino* in the manner suggested by the Patent Office, the resulting combination nevertheless fails to disclose or suggest an external layer that is the outermost layer of the multilayer structure, and in that at least the external layer is formed from a composition comprising as a polymer matrix a polyamide composition comprising: (i) a polyamide thermoplastic copolymer obtained by copolymerization of  $\epsilon$ -caprolactam, and a mixture of hexamethylenediamine with a diacid comprising at least 9 carbon atoms, the ratio by weight between the  $\epsilon$ -caprolactam and the total amount of hexamethylenediamine and diacid being between 4 and 9, or (ii) a mixture of at least said thermoplastic polyamide copolymer (i) and at least one second thermoplastic polyamide or copolyamide obtained by polymerization of monomers comprising fewer

than 9 carbon atoms, the content by weight of the second thermoplastic polyamide or copolyamide in the polymer matrix being between 0 and 80% by weight.

Applicants note that the use of an exemplary external layer, for example, can provide excellent resistance to stress cracking caused by a  $\text{ZnCl}_2$  salt. The applied art, on the other hand, is not concerned with improving resistance to stress cracking caused by a  $\text{ZnCl}_2$  salt, and has no recognition or suggestion of such exemplary benefit of employing an exemplary external layer. Furthermore, Applicants submit that by employing exemplary internal and external layers together, for example, a multilayer structure can be provided having a good bond between the two layers without using an intermediate binding layer. Such exemplary multilayer structure can have, for example, high barrier properties to fuels and good properties of flexibility as well as a better resistance to environment conditions, such as good resistance to stress cracking discussed above.

For at least the above reasons, it is apparent that independent claim 1 is non-obvious over the applied art. Accordingly, withdrawal of the §103(a) rejections is respectfully requested.

Dependent claim 27 is further distinguishable from the applied art. Such claim recites that a thickness of the external layer is less than 0.1 mm. Each of Embodiments 1-5 of *Nishino*, on the other hand, employed outer layer thicknesses ranging from 0.45 mm to 0.8 mm, i.e., well outside the range of less than 0.1 mm recited in claim 27. Further, *Nishino* has no recognition or suggestion that, for example, excellent stress cracking resistance can be obtained by employing a thickness of the external layer of less than 0.1 mm. At best, *Nishino* suggests the use of a substantially thicker external layer to attain the properties taught to be desirable in *Nishino's* disclosure.

Dependent claim 30 is further distinguishable from the applied art. Such claim recites that the structure consists of one external layer and one internal layer. That is, according to claim 30, the structure only contains two layers. By comparison, Embodiments 2 to 5 disclosed by *Nishino* are composed of three, four, four and five layers, respectively, and as such do not correspond to the exemplary structure recited in dependent claim 30 which consists of two layers, i.e., one external layer and one internal layer. Further, Embodiment 1 of *Nishino* employs a polyolefin resin layer as an outside layer. Simply put, none of the embodiments disclosed by *Nishino* employ a structure consisting of one external layer and one internal layer as recited in dependent claim 30.

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited. If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned.

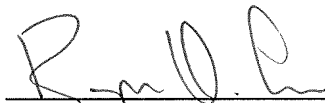
The Director is hereby authorized to charge any appropriate fees under 37 C.F.R. §§ 1.16, 1.17 and 1.20(d) and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

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